

## Some Calendars of Northern Luzon

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THE great ethnological studies of Northern Luzon by Barton, Cole, Jenks, Lambrecht, and Vanoverbergh do not give any description of the calendars in use in that area, but shorter notices in both scientific and popular journals indicate that the peoples of the Mountain Province use a lunar calendar. Wherever a people are reported to use a lunar calendar for agriculture, the problem immediately arises as to how they "correct" the lunar calendar to keep it in phase with the solar year which is the basis of the climate and seasons which affect agriculture. Failure to come to grips with this problem is at least common enough to have moved Leach to remark it with some wonder in his article, "Primitive Calendars" (Leach 1950).

In the same article, Leach presented so nice a statement of the problem that we cannot resist quoting it here:

The purpose of any calendar, lunar or otherwise, is to measure the progress of the seasons and to make possible the accurate prediction of their arrival. In climates and localities the seasons repeat themselves over a somewhat flexible yearly cycle of between 12 and 14 lunar months. The sun and moon, combined and in opposition, in phase and out, are the principal causative agents for the seasonal cycle, and it is thus essential for the purposes of an effective lunar calendar to establish empirically a correlation between the lunar and the solar years. This remains true even when the user of the calendar is unaware of the existence of any such natural time period as a "solar year." The solar year consists of 365.24 days. The synodic lunar month consists of 29.53 days, so that a lunar year of twelve months contains 354.57 days. Defined in these terms there is a difference in the lunar and the solar years of 10.87 days. If an extra (intercalary) month be inserted in the lunar year every three years, the two calendar cycles will keep nearly in step but not exactly so [i.e., 37 months equal three years]; a further intercalary month will be required once every 29 years and so on. The problem that faces every user of a lunar calendar is thus to devise some empirical method of inserting intercalary months at irregular intervals in such a way that the lunar and solar "years" never get more than one month out of step.

Mountain Province natives acculturated enough to discuss the problem of calendars believe that a year in the Gregorian calendar is the time defined by twelve full moons, and that each of those lunations noted by their calendar-keeping forebears corresponds to one of those months introduced by the Spaniards. Failure to record the beginning or end of each true lunar month or to count the number of days contained in one enables them to remain unaware of the discrepancy between what they now call the "pagan" and the "Christian" calendars. That they do not actually farm on a schedule set by twelve full moons is indicated by the fact that year after year those agricultural activities traditionally performed at the beginning of the dry season are still being performed at the beginning of the dry season.

When we speak of a "lunar calendar" we mean a system of time-keeping in which months are defined by actual new or full moons, and each agricultural year is some multiple, although a varying multiple, of those months. This is the system used by Chinese farmers, but it is not exactly the kind in use in the Mountain Province. Overall examination of calendars indigenous to Northern Luzon suggests an alternative term: a seasonal calendar. The seasonal year may be defined as the completion of a cycle of any number of seasons determined by nonastronomical observations of the environment—the coming of rain, the flowering of plants, the migration of birds, and so forth. The seasonal year is of course related to the solar year; although it rarely or never coincides exactly with a solar year, a seasonal decade equals a solar decade.

In the Mountain Province the year is divided into twelve seasons, each of which usually has one full moon—usually but not always, for the season is determined by some annual biological cycle and not by the phases of the moon. The moons which wax and wane during these seasons are named, sometimes for human activities such as transplanting or sugarcane-milling and sometimes for natural events such as the swelling of mountain streams or the blossoming of certain trees. Almost half of them are called by the name of some migratory bird that makes its presence known at that time of the year. Somewhere within the cycle of twelve there is always a key event, a sort of New Year's season, to signal the sowing of seeds and set the agricultural year in motion. Along the crest of the Cordillera Central this is usually the advent of the *kiling*-bird, while among the northern and eastern Kalingas it is either the flowering of the *gebgeb*-tree or the light drizzle of the first rains.

The Mountain Province farmer sees the year not as the total of a number of periods but as a series of events. To him the month is not a number of days but the new or full moon which occurs during a certain season. *Do-ok*, for example, is the name of a month in Besao, but in nearby Sagada it is simply the time of the year when food is scarce, water low, and dysentery rife, and to be *nado-ok* is to suffer that symptom of dysentery noted on medical charts as *l.b.m. Panaba*, meaning "flourishing" or "fertile," is the common name of a month on both sides of the Cordillera, but its seasonal significance is indicated by its varying definitions: in Madukayan it is "the time when rice begins to bear heads," but in nearby Mangali it is "the time of high water." Mangali, on the bank of a wide river, commemorates the converse situation with the month of *Kiang*, "a ford," defined locally as "the time when you can cross the river without getting your G-string wet."

Far from considering a month to be a fixed number of days, the oldtime Igorot doesn't even know how many days there are in a month. In some places he denominates the phases of the moon into as many as eight periods, but he doesn't count the number of days in each. This is also true of his native word for "year." When asked by an "educated" person what a year is, he says it is twelve months, but when his own child puts the question to him, he explains the term by equating it with the time between harvests. Indeed, he is even willing to use the term as if it were an event rather than a period of time;

the question, "What is a year?" put to an old Igorot one harvest time brought the cryptic reply, "Now." There are even some old farmers in Tetep-an, during whose lifetime a second crop has been introduced, who allow that the years nowadays are much shorter than they used to be.

There is little indication in any Cordillera dialect as spoken by natives in truly native situations that Igorots count the passage of time at all. Men do not reckon their own ages or know how many years ago a specific thing happened, and mothers present their babies at clinics not knowing how many months old they are. Although there is grammatical machinery for forming a complete set of ordinal numerals, it is rarely employed in actual practice: old warriors recounting the forays of their youth refer to the first, the second, the next, the next, and the next. Prolific parents speak of an eldest or youngest child but not of a third or fourth, and there are parents who do not even recall which of their children was born first.

Investigators have frequently discovered that while any mountaineer questioned may name the current or following month, he is slow to produce the names of all of them. Barton (Ms.) working in Sagada in 1941, recorded several inconsistent lists of months, and James A. Robertson (1914), Librarian of the Philippine Library in Manila, quoted Vanoverbergh as having extracted eleven "periods" of time from the Bauko calendar. The Igorot cannot run down his list of months and tick them off on his fingers because he doesn't see them as a unit with a beginning or an end. To him, they are seasons; just as the dweller in the temperate zone thinks of autumn as following summer rather than as coming two seasons after spring, so he sees each of them as following the one before it and not as one in a sequence of twelve.

As people have migrated throughout the mountains of Northern Luzon, they have often lost the original significance of the month-names they carried with them. The Sagada month of *Adogna* is explained in Payeo to the west as referring to the bird *adog*, while its eastern Kalinga version, *Aladog*, is on one side of a certain mountain "the time for getting a few beans" and on the other "the end of planting." They have also added new names and meanings to replace the old ones: *Gubbok*, meaning "all," is the name of a Madukayan month when "all the people are harvesting" and a Tanudan month when "all the people are resting." The Kalinga, who depend upon slash-and-burn agriculture for growing upland rice, designate a month that would have less significance to terrace-builders with their irrigated crops: *Bisbis*, "the beginning of the rainy season."

In the migratory habits of birds the mountaineer found his most popular clue to the passage of the seasons, and from one end of the Cordillera to the other the names of species of birds account for almost half the names of months. *Bakakew* is almost universally considered to be the time of the year when a bird of that name starts to call "bakakew!" in the night. Most significant of all to the wet-rice peoples is that bird called kiling or kiwing, for if they sow their seedbeds when he makes his distinctive cry, their rice will flourish when the mountain streams are swollen and be ready for harvest before the water courses dry up again. To be more specific, one should start to sow when the

baby kiling can only chirp "ki-ik" for when he has developed his full-throated "kiling!" transplanting should begin.

Since the rains do not begin on precisely the same date every year, the growth patterns of the flora and fauna about the Igorot also vary. The gebgeb-tree, whose flame-colored blossoms are the planting signal in lower altitudes, blooms early or late in accordance with the climatic variations, and the little kiling-bird's parents consider the temperature and precipitation before mating and nesting. It is just this sort of flexibility which gives the seasonal calendar an advantage over a strict solar calendar, for it is the early springs or late winters rather than the number of days since the last equinox which affect gebgeb-tree and growing rice alike.

It must inevitably happen—indeed, it happens on an average of once every three years—that the Mountain Province farmer watches the rising of a new moon which ought to be Kiling but hasn't yet heard a sound out of a kiling-bird. This does not surprise him very much. He has seen kiling-birds come early and seen them come late; they have sometimes chirped during the first quarter of the moon, sometimes during the last. It is far from surprising—it isn't even noteworthy that they should be even later this year and chirp during the first quarter of still another moon. The question which forms almost unbidden on the anthropologist's lips, "Do you mean to say the month of Kiling this year has two new moons?" never even occurs to him.

In actual practice, the Mountain Province seasonal calendar is not so simple as outlined here, and what appears to the scientist as a month with two moons is obscured in a complicated ceremonial calendar which is the accumulation of generations of adjustment to environment. By the time you allow for repairing terrace walls, preparing seedbeds, plowing, harrowing, transplanting, scaring away ricebirds and harvesting, the clearing and burning of supplemental garden sites, the planting, harvesting, and milling of sugarcane, and wedge in a few wedding seasons when there is enough food for the appropriate prestige feasts, there is very little time left for more interesting pastimes such as head-hunting. (The fact that you can't grow rice and take heads at the same time should not be overlooked in considering the connection between these two activities in Igorot metaphysic.) Moreover, knowledge of irrigated rice spread along the Cordillera slowly and was accompanied by the growth of a complex mass of prayers, rites and taboos. So involved and overlapping have been the factors contributing to these ceremonial calendars that the village soothsayers need keep a firm fix on the cry of the kiling-bird or the bursting into flame of gebgeb-blossoms lest society lose track of the season and find next harvest its fields desiccated and its crops grainless.

Sometimes, during migrations in response to population pressures, epidemics, and intertribal wars, or in the search for fertile land, the peoples of the Mountain Province have left behind the natural event which was the key point in their calendar. Moreover, as they experimented with the mysterious new agriculture which demanded the irrigating and transplanting of rice, they found it necessary to mark more than one crucial point in the year. Under such

impetus it has several times happened in Montane history that they have turned to celestial observations as the basis for their calendars.

Don Martin Quirante, who visited the Mountain Province in 1625, has left a tantalizing reference to some sort of stellar *Ygolote* calendar. He writes that the natives of what is now Benguet "cannot read, nor do they know what day, month, or year, or the increase and decline of the moon, signify. They govern themselves by one star that rises in the west, which they call *gaganayan*, while they call the natives of their neighborhood by the same name. [*Ganay* in modern Igorot is the fertility of plants; *gaganayan* ought to be "most fertile" or "place of great fertility."] On seeing that star they attend to the planting of their waste and wretched fields in order to sow them with yams and camotes, which form their usual and natural food" (Blair and Robinson 1909). No further reference to such a system appears in the literature on Northern Luzon, nor have contemporary investigators so far located it in situ.

The Ifugao, whose long use of irrigated rice has enabled them to occupy the same land for more generations than any other Montane people, are reported to have developed a solar calendar of such mathematical nicety that it rotates as automatically as, and much more neatly than, the Gregorian calendar. Beyer (1924) describes an Ifugao calendar which includes a 365-day year of 13 months of 28 days each, plus an extra day thrown in to even things up, and a village timekeeper who "knows (by consulting his plants) when the leap year comes, but keeps quiet about it and does not tell his people about this extra day." He has kept so quiet that this secret has not been uncovered by such later investigators as Wilson (1955), whose description of the Ifugao calendar differs from Beyer's to the extent of including annual celestial observations: "This is calculated by the position of the stars and by the angle of the sun's rays observed in a certain small ravine where are grown certain plants known to flower, fruit and change their leaves on about the same day each year." This calendar, especially when coupled with Beyer's further report that the official calendar-keeper carefully records the passage of years, is so untypical of Mountain Province calendars generally that information as to its introduction and distribution would be highly significant.

About 200 years ago, a people of mixed Kankanay-Bontoc culture began to build rice terraces up the small valley of Sagada near the watershed of the Cordillera in western Bontoc. Their situation has been described by a native author: "Sagada, a village about three hours walking distance from Bontoc, is about 3,000 feet higher and the rice takes longer to mature. They cannot depend on the migration of birds since they are forced to plant a month or so before the birds start to migrate. Therefore, during the last half of the rainy season, they watch the sun's distance from the celestial equator, and they start sowing when the sun reaches a point where it rises in line with two certain rocks projecting from the tops of adjoining hills. In the surrounding villages which are more or less lower than Sagada, they do not bother to watch the birds or the sun. They just keep an eye on the Sagada people and time their sowing some weeks after that in Sagada" (Oakes 1947).

The marks by which Sagadans note the declination of the sun are called *gadagad*, a word which in other parts of the Province signifies simply a mark or scratch, or an instrument by which a scratch can be made, such as a saw or coconut-grater. The description of the *gadagad* popular among native Sagadans is as follows: Each of the *dap-ay* or tribunals (called *ato* in central Bontoc) of old Sagada has its own way of determining the *gadagad*, but the "official" dates are established by observers using notches cut in the stone platform of *dap-ay Bilig* in Demang. Here, as the planting season approaches, the old men station themselves each morning at sunrise and watch for the sun's rays to fall in line with one set of these marks. Then on September 15 they announce the holy day of *Pangat*, when a specially selected farmer-priest goes out for the ritual planting of a few rice seeds. Sometime between September 25 and 29, another set of marks is used to announce *Dayday*, when the general public may sow their seeds, and on October 22 they call for the *Begnas*, a community celebration with sacrifices for the fertility of the sprouting rice.

The fact that native informants describe and think of the *gadagad* in terms of the Gregorian calendar indicates that calendar-keeping by *gadagad* is not a very vital issue today and makes difficult an investigation of what it was like in an earlier day. The *Dayday* sights are two marks about seven feet apart along the southern edge of the stone platform of *Bilig tribunal*. The western one is a nine-inch straight line cut into the rock about an inch and a half deep; the eastern one is a six-inch V-shaped groove. The observer sits on the western mark looking across the other one toward the mountain to the east. Since the mountain is so close to the village that the rising sun does not appear until it is about ten degrees high, and since both marks are on the floor of the stone platform, the marks, mountain, and observer's eye can be in the same plane but not in a straight line. This means that the least movement of the observer's head, even the distance between his eyes, would make the solar fix too inexact to select one day out of 365. Indeed, in 1954 the *Dayday* observations were concluded to the satisfaction of local savants on October 2, since the death of a prominent old member of *Bilig tribunal* put a taboo on planting and apparently even the calculation of the proper planting date.

Most probably, however, the two sights for the *Bilig gadagad* are modern niceties; some declivity along the mountain's skyline was probably one of the original significant marks, and this is still the case in other tribunals. The *dap-ay* platforms are the early morning gathering places of most of the older members, so Sagada sunrises have left a clear memory in many minds of the exact points along the eastern horizon at which they occur from season to season. There is hardly a meeting-place that does not boast some scratch in a stone, some tree on the mountaintop, as the *gadagad* for one holiday or the next. Moreover, from a single solar fix to set the beginning of the agricultural cycle, the *gadagad* has expanded to include a whole flurry of little signals for other social occasions, even those which, like transplanting or prayers for the growth of seedlings, must already be determined by the natural rate of growth of the rice. The vagaries of this overextension of *gadagad*-keeping were demonstrated

in 1955 when planting was two weeks late due to tabooing deaths in the village, and yet transplanting came at the regular time. If planting and transplanting dates must be accurately fixed, and if the ancestors of the Sagada farmers depended on the gadagad to fix them, such variations would have had a fatal effect on the village food supply.

The gadagad seems to be a very recent development. Although local folklore records in detail not only the origin but the route of entry of even minor agricultural rites, no story is told about the gadagad. Its distribution outside Sagada is not very extensive; it reaches Bagnen to the south, Besao and Agawa to the west, but only Dalikan of the central Bontoc barrios to the east. Along the Chico River below Sagada, where the climate is less rigorous and rice matures faster, farmers take their cue from the higher villages; as a native of Alab put it, "When the Tetep-an people are invited up to the Sagada post-planting feasts, they know it's time for them to start planting, and when we're invited up to the Tetep-an feasts, we know it's time to start planting down here." Significantly, however, in none of these other places is the real purpose of the gadagad understood. In Besao it sets the date for putting scarecrows in the fields just before harvest, and in Bagnen it is an omen that passes comment on whether the rice was planted early enough: "If the sun's directly over Mt. Polis during transplanting, the crops will be good."

There is one little tale, however, in which the word gadagad does appear. According to the people of Bogang (Balugan), a satellite barrio just south of Sagada, high on the western mountain above the Ottobey shrine sacred to the memory of departed head-hunters there used to be a rock called Gadagad with a deep groove across it. This groove appeared as the result of a contest between two brothers to see who could urinate farthest: the elder brother's stream flowed vigorously across the face of the stone, leaving this mark and giving portent of things to come; his progeny flourished while his younger brother was widowed soon after. It is tempting to imagine a day when this story was preserved in some ritual myth recited at planting time, a day when the ancient village fathers went out on omen-seeking trips to Gadagad on the western mountaintop and came back with the knowledge of the best time to start planting. But if they did, why is no legend of their activities celebrated in modern agricultural magic? Probably because this invention came a few generations too late—already in the Spanish garrison town of Kayan to the southwest people were planting in Setiembre and Octubre.

Whether or not the Sagada solar calendar actually reflects the Spanish introduction of a Western calendar into the Mountain Province, it was certainly produced during the mid-nineteenth-century intellectual ferment which resulted from Sagada's contact with extra-Sagada ideas. At that time the people of Sagada had not for many generations been facing the new problems of community life attendant on settled agriculture, close unrelated neighbors, and the inheritance of real property. Already a new religion was developing to meet the needs of the new agriculture and to incorporate the advantages of two opposed ways of life: the rice-rich vigor of the head-taking terrace-builders

of the interior, and the peaceful, free-trading lowland world whose monotheistic god so bountifully endowed his worshippers with iron and cloth and beautiful Chinese beads and wine jars. Spanish military authority, succeeded in turn by American and Filipino jurisdiction, was the final quickening influence which produced such modern Igorot "intellectuals" as old Cabayo, a sort of pagan Thomas Aquinas busily redefining Sagada religion to meet the challenges of modern medicine without violence to the faith, or Eugenio Bayang who has reckoned for himself a month of between 29 and 30 days and the theory that 25 of these equal two years.

It is perhaps not surprising that the two solar calendars reported for the Mountain Province should have developed in the southern part. The proto-Kalinga culture of the Cagayan-facing northwest was an adjustment to an environment of vegetation too lush to encourage the observation of sunrise horizons—the only environment in the Province, incidentally, capable of supporting rich crops of upland rice. Nor were those dry-rice-farming Kalingas so dependent on a calendar, for they could not clear and burn the land until it was well dried or plant their seeds until the rains began, and the Montane dry season is barely four months long. The peoples of Ifugao, Bontoc, and Benguet, on the other hand, living on the tops of mountains, used stone platforms as lookout posts for protection against surprise attack, and generations of such early morning sentry duty developed the daybreak habits which persist to this day. Indeed, so much time do those mountaineers devote to watching the sun come up from behind the crest of the next peak that they are all well aware of the sun's apparent north-south movement. One might well wonder why a solar calendar wasn't developed everywhere. The answer is probably quite simple: such a calendar wasn't needed; the old one was good enough. To this day, the hard-working farmers of Bontoc are able to inspire the envy of their neighbors by stuffing their granaries full of rice procured through setting their calendars to the cry of a baby bird.

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